

Translation

PATENT COOPERATION TREATY

PCT/EP2003/011284



PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY
(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

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| Applicant's or agent's file reference P800928/WO/1 | FOR FURTHER ACTION | See Form PCT/IPEA/416 |
| International application No. PCT/EP2003/011284 | International filing date (day/month/year) 11 October 2003 (11.10.2003) | Priority date (day/month/year) 15 October 2002 (15.10.2002) |
| International Patent Classification (IPC) or national classification and IPC H01M 8/14 | | |
| Applicant MTU CFC SOLUTIONS GMBH | | |

1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 6 sheets, including this cover sheet.

3. This report is also accompanied by ANNEXES, comprising:

a. ☐ (sent to the applicant and to the International Bureau) a total of _____ sheets, as follows:

☐ sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).

☐ sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.

b. ☐ (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) _____, containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).

4. This report contains indications relating to the following items:

☒ Box No. I Basis of the report

☐ Box No. II Priority

☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

☐ Box No. IV Lack of unity of invention

☒ Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

☐ Box No. VI Certain documents cited

☐ Box No. VII Certain defects in the international application

☐ Box No. VIII Certain observations on the international application

| | |
|--|--|
| Date of submission of the demand 08 May 2004 (08.05.2004) | Date of completion of this report 02 February 2005 (02.02.2005) |
| Name and mailing address of the IPEA/EP | Authorized officer |
| Facsimile No. | Telephone No. |

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/EP2003/011284

Box No. I Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.

- ☐ This report is based on translations from the original language into the following language _____, which is language of a translation furnished for the purpose of:
- ☐ international search (under Rules 12.3 and 23.1(b))
 - ☐ publication of the international application (under Rule 12.4)
 - ☐ international preliminary examination (under Rules 55.2 and/or 55.3)

2. With regard to the **elements** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

- ☒ The international application as originally filed/furnished
- ☒ the description:
- pages _____ 1-7 _____, as originally filed/furnished
- pages* _____ received by this Authority on _____
- pages* _____ received by this Authority on _____
- ☒ the claims:
- pages _____ 1-17 _____, as originally filed/furnished
- pages* _____, as amended (together with any statement) under Article 19
- pages* _____ received by this Authority on _____
- pages* _____ received by this Authority on _____
- ☐ the drawings:
- pages _____, as originally filed/furnished
- pages* _____ received by this Authority on _____
- pages* _____ received by this Authority on _____
- ☐ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.

3. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages _____
- ☐ the claims, Nos. _____
- ☐ the drawings, sheets/figs _____
- ☐ the sequence listing (*specify*): _____
- ☐ any table(s) related to sequence listing (*specify*): _____

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

- ☐ the description, pages _____
- ☐ the claims, Nos. _____
- ☐ the drawings, sheets/figs _____
- ☐ the sequence listing (*specify*): _____
- ☐ any table(s) related to sequence listing (*specify*): _____

* If item 4 applies, some or all of those sheets may be marked "superseded."

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.
PCT/EP 03/11284

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

| | | | |
|-------------------------------|--------|------|-----|
| Novelty (N) | Claims | 8-17 | YES |
| | Claims | 1-7 | NO |
| Inventive step (IS) | Claims | 8-17 | YES |
| | Claims | 1-7 | NO |
| Industrial applicability (IA) | Claims | 1-17 | YES |
| | Claims | | NO |

2. Citations and explanations

1. Reference is made to the following documents:

D1: DE 100 60 052 A

D2: US-A-4 480 017

2. CLARITY

2.1. The application does not satisfy the requirements of PCT Article 6 because claim 1 is not clear.

2.2. Claim 1 was formulated as a "product by process claim". Product claims that characterize the products by their production method (in the application, a different starting composition in the method for producing the electrolyte matrix known from document D2) are admissible only if the products themselves satisfy the requirements for patentability, including the requirement that they be novel and inventive. A product is not considered novel by virtue of the fact that it is produced by a novel method. A claim that characterizes a product in terms of a production method is considered to be directed to the product itself (cf. PCT International Search and Preliminary Examination Guidelines, page 46, paragraph 5.26).

3. NOVELTY

3.1. The present application does not satisfy the requirements of PCT Article 33(1) because the subject matter of claims 1-7 is not novel within the meaning of PCT Article 33(2).

3.1.1. Document D2 discloses (claim 15; see also (2) and page 4, line 9 of the description):

an electrolyte matrix, in particular for a molten carbonate fuel cell, consisting of a matrix material that contains lithium aluminate and lithium titanate.

Therefore, document D2 is prejudicial to the novelty of the subject matter of claim 1.

3.1.2. Dependent claims 2-7 do not appear to contain any features that, in combination with the features of any claim to which they refer back, meet the PCT requirements for novelty and inventive step.

3.2. Document D1 discloses (claims 1-32):

a method for producing an electrolyte matrix, in particular for a molten carbonate fuel cell, said electrolyte matrix consisting in its untreated form of a matrix material that contains a combination of lithium carbonate, aluminum oxide and zirconium carbide.

The subject matter of claim 8 thus differs from the known method for producing an electrolyte matrix for a molten carbonate fuel cell in that titanium

carbide rather than zirconium carbide is used in the aforementioned starting composition of the matrix material, and so the matrix material contains lithium aluminate and lithium titanate once the fuel cell has been started up.

Therefore, the subject matter of claim 8 is novel (PCT Article 33(2)).

4. INVENTIVE STEP

Document D1 is considered the prior art closest to the subject matter of claim 8.

The problem to be solved by claim 8 of the present application can thus be seen as that of indicating an alternative method for producing an electrolyte matrix that has high green strength and good stability in storage in its green state.

The available prior art does not contain any clear suggestions that would prompt a person skilled in the art to use titanium carbide rather than zirconium carbide in the method for producing an electrolyte matrix disclosed in document D1.

Accordingly, the solution proposed in claim 8 of the present application can be considered inventive (PCT Article 33(3)).

5. Claims 9-17 are dependent upon claim 8 and thus likewise satisfy the PCT requirements with respect to novelty and inventive step.

Feld Nr. VIII (iii) ERKLÄRUNG: BERECHTIGUNG, DIE PRIORITÄT EINER FRÜHEREN ANMELDUNG ZU BEANSPRUCHEN

Die Erklärung muß dem in Abschnitt 213 vorgeschriebenen Wortlaut entsprechen; siehe Anmerkungen zu den Feldern VIII, VIII (i) bis (v) (allgemein) und insbesondere die Anmerkungen zum Feld Nr. VIII (iii). Wird dieses Feld nicht benutzt, so sollte dieses Blatt dem Antrag nicht beigelegt werden.

Erklärung hinsichtlich der Berechtigung des Anmelders, zum Zeitpunkt des internationalen Anmeldedatums, die Priorität der unten aufgeführten früheren Anmeldung zu beanspruchen, in Fällen, in denen der Anmelder nicht auch der Anmelder der früheren Anmeldung ist, oder in Fällen, in denen sich der Name des Anmelders seit der Einreichung der früheren Anmeldung geändert hat (Regeln 4.17 Ziffer iii und 51bis.1 Absatz a Ziffer iii):

in bezug auf diese internationale Anmeldung,

MTU CFC Solutions GmbH ist kraft des nachfolgend Aufgeführten berechtigt, die Priorität der früheren Anmeldung Nr. 102 47 997. zu beanspruchen:

(vii) auf Grund sonstiger Übertragung der Berechtigung von MTU Friedrichshafen GmbH auf MTU CFC Solutions GmbH im Wege eines Einbringungsvertrags mit Wirkung vom 01. Januar 2003.

(ix) Diese Erklärung wird abgegeben im Hinblick auf:

— a) alle Bestimmungsstaaten.

☐ Diese Erklärung wird auf dem folgenden Blatt fortgeführt, "Fortsetzungsblatt für Feld Nr. VIII (iii)".